



SEQUENCE LISTING

<110> BASLER, Konrad
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KRAMPS, Thomas
PETER, Oliver

<120> ESSENTIAL DOWNSTREAM COMPONENT OF THE WINGLESS SIGNALING PATHWAY AND THERAPEUTIC
AND DIAGNOSTIC APPLICATIONS BASED THEREON

<130> Q60361

<140> 09/915,543

<141> 2001-07-27

<150> 60/221,502

<151> 2000-07-28

<160> 22

<170> PatentIn version 3.1

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Leu Pro Thr Asn Ser Pro Ser Met Asp Gly Thr Gly Ser Leu Ser Gly
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Ser Val Pro Gln Ala Asn Thr Ser Thr Val Gln Ala Gly Thr Thr Thr
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Val Leu Ser Ala Asn Lys Asn Cys Phe Gln Ala Asp Thr Pro Ser Pro
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Ser Asn Gln Asn Arg Ser Arg Asn Thr Gly Ser Ser Ser Val Leu Thr
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His Asn Leu Ser Ser Asn Pro Ser Thr Pro Leu Ser His Leu Ser Pro
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<213> Human lgs/bcl9

<400> 11

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Gly Ser Leu Pro Ser Ser Thr Pro Tyr Thr Met Pro Pro Glu Pro Thr
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Leu Ser Gln Asn Pro Leu Ser Ile Met Met Ser Arg Met Ser Lys Phe
35 40 45

Ala Met Pro Ser Ser Thr Pro Leu Tyr His Asp Ala Ile Lys Thr Val
50 55 60

Ala Ser Ser Asp Asp Asp Ser Pro Pro Ala Arg Ser Pro Asn Leu Pro
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Ser Met Asn Asn Met Pro Gly Met Gly Ile Asn Thr Gln Asn Pro Arg
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Ile Ser Gly Pro Asn Pro Val Val Pro Met Pro Thr Leu Ser Pro
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<213> Human lgs/bcl9

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Gln Ser Ser Pro Lys Ser Lys Gln Glu Val Met Val Arg Pro Pro Thr
20           25           30

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Val Met Ser Pro Ser Gly Asn Pro Gln Leu Asp Ser Lys Phe Ser Asn
35           40           45

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Gln Gly Lys Gln Gly Gly Ser Ala Ser Gln Ser Gln Pro Ser Pro Cys
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Asp Ser Lys Ser Gly Gly His Thr Pro Lys Ala Leu Pro Gly Pro Gly
65 70 75 80

Gly Ser Met Gly Leu Lys Asn Gly Ala Gly Asn Gly Ala Lys Gly Lys
85 90 95

Gly Lys Arg Glu Arg Ser Ile Ser Ala Asp Ser Phe Asp Gln Arg Asp
100 105 110

Pro Gly Thr Pro Asn Asp Asp Ser Asp Ile Lys Glu Cys Asn Ser Ala
115 120 125

Asp His Ile Lys Ser Gln Asp Ser Gln His Thr Pro His Ser Met Thr
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Pro Ser Asn Ala Thr Ala Pro Arg Ser Ser Thr Pro Ser His Gly Gln
145 150 155 160

Thr Thr Ala Thr Glu Pro Thr Pro Ala Gln Lys Thr Pro Ala Lys Val
165 170 175

Val Tyr Val Phe Ser Thr Glu Met Ala Asn Lys Ala Ala Glu Ala Val
180 185 190

Leu Lys Gly Gln Val Glu Thr Ile Val Ser Phe His Ile Gln Asn Ile
195 200 205

Ser Asn Asn Lys Thr Glu Arg Ser Thr Ala Pro Leu Asn Thr Gln Ile
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Ser Ala Leu Arg Asn Asp Pro Lys Pro Leu Pro Gln Gln Pro Pro Ala
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Pro Ala Asn Gln Asp Gln Asn Ser Ser Gln Asn Thr Arg Leu Gln Pro
245 250 255

Thr Pro Pro Ile Pro Ala Pro Ala Pro Lys Pro Ala Ala Pro Pro Arg
260 265 270

Pro Leu Asp Arg Glu Ser Pro Gly Val Glu Asn Lys Leu Ile Pro Ser

275

280

285

Val Gly Ser Pro Ala Ser Ser Thr Pro Leu Pro Pro Asp Gly Thr Gly
 290 295 300

Pro Asn Ser Thr Pro Asn Asn Arg Ala Val Thr Pro Val Ser Gln Gly
 305 310 315 320

Ser Asn Ser Ser Ser Ala Asp Pro Lys Ala Pro Pro Pro Pro Pro Val
 325 330 335

Ser Ser Gly Glu Pro Pro Thr Leu Gly Glu Asn Pro Asp Gly Leu Ser
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Gln Glu Gln Leu Glu His Arg Glu Arg Ser Leu Gln Thr Leu Arg Asp
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Ile Gln Arg Met Leu Phe Pro Asp Glu Lys Glu Phe Thr Gly Ala Gln
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Ser Gly Gly Pro Gln Gln Asn Pro Gly Val Leu Asp Gly Pro Gln Lys
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Lys Pro Glu Gly Pro Ile Gln Ala Met Met Ala Gln Ser Gln Ser Leu
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Gly Lys Gly Pro Gly Pro Arg Thr Asp Val Gly Ala Pro Phe Gly Pro
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Gln Gly His Arg Asp Val Pro Phe Ser Pro Asp Glu Met Val Pro Pro
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Ser Met Asn Ser Gln Ser Gly Thr Ile Gly Pro Asp His Leu Asp His
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Met Thr Pro Glu Gln Ile Ala Trp Leu Lys Leu Gln Gln Glu Phe Tyr
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Glu Glu Lys Arg Arg Lys Gln Glu Gln Val Val Val Gln Gln Cys Ser
 485 490 495

Leu Gln Asp Met Met Val His Gln His Gly Pro Arg Gly Val Val Arg
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Gly Pro Pro Pro Pro Tyr Gln Met Thr Pro Ser Glu Gly Trp Ala Pro
515 520 525

Gly Gly Thr Glu Pro Phe Ser Asp Gly Ile Asn Met Pro His Ser Leu
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Pro Pro Arg Gly Met Ala Pro His Pro Asn Met Pro Gly Ser Gln Met
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Arg Leu Pro Gly Phe Ala Gly Met Ile Asn Ser Glu Met Glu Gly Pro
565 570 575

Asn Val Pro Asn Pro Ala Ser Arg Pro Gly Leu Ser Gly Val Ser Trp
580 585 590

Pro Asp Asp Val Pro Lys Ile Pro Asp Gly Arg Asn Phe Pro Pro Gly
595 600 605

Gln Gly Ile Phe Ser Gly Pro Gly Arg Gly Glu Arg Phe Pro Asn Pro
610 615 620

Gln Gly Leu Ser Glu Glu Met Phe Gln Gln Gln Leu Ala Glu Lys Gln
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Leu Gly Leu Pro Pro Gly Met Ala Met Glu Gly Ile Arg Pro Ser Met
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Glu Met Asn Arg Met Ile Pro Gly Ser Gln Arg His Met Glu Pro Gly
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Asn Asn Pro Ile Phe Pro Arg Ile Pro Val Glu Gly Pro Leu Ser Pro
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Ser Arg Gly Asp Phe Pro Lys Gly Ile Pro Pro Gln Met Gly Pro Gly
690 695 700

Arg Glu Leu Glu Phe Gly Met Val Pro Ser Gly Met Lys Gly Asp Val
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Asn Leu Asn Val Asn Met Gly Ser Asn Ser Gln Met Ile Pro Gln Lys
725 730 735

Met Arg Glu Ala Gly Ala Gly Pro Glu Glu Met Leu Lys Leu Arg Pro
740 745 750

Gly Gly Ser Asp Met Leu Pro Ala Gln Gln Lys Met Val Pro Leu Pro
755 760 765

Phe Gly Glu His Pro Gln Gln Glu Tyr Gly Met Gly Pro Arg Pro Phe
770 775 780

Leu Pro Met Ser Gln Gly Pro Gly Ser Asn Ser Gly Leu Arg Asn Leu
785 790 795 800

Arg Glu Pro Ile Gly Pro Asp Gln Arg Thr Asn Ser Arg Leu Ser His
805 810 815

Met Pro Pro Leu Pro Leu Asn Pro Ser Ser Asn Pro Thr Ser Leu Asn
820 825 830

Thr Ala Pro Pro Val Gln Arg Gly Leu Gly Arg Lys Pro Leu Asp Ile
835 840 845

Ser Val Ala Gly Ser Gln Val His Ser Pro Gly Ile Asn Pro Leu Lys
850 855 860

Ser Pro Thr Met His Gln Val Gln Ser Pro Met Leu Gly Ser Pro Ser
865 870 875 880

Gly Asn Leu Lys Ser Pro Gln Thr Pro Ser Gln Leu Ala Gly Met Leu
885 890 895

Ala Gly Pro Ala Ala Ala Ala Ser Ile Lys Ser Pro Pro Val Leu Gly
900 905 910

Ser Ala Ala Ala Ser Pro Val His Leu Lys Ser Pro Ser Leu Pro Ala
915 920 925

Pro Ser Pro Gly Trp Thr Ser Ser Pro Lys Pro Pro Leu Gln Ser Pro
930 935 940

Gly Ile Pro Pro Asn His Lys Ala Pro Leu Thr Met Ala Ser Pro Ala
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Met Leu Gly Asn Val Glu Ser Gly Gly Pro Pro Pro Pro Thr Ala Ser
965 970 975

Gln Pro Ala Ser Val Asn Ile Pro Gly Ser Leu Pro Ser Ser Thr Pro
980 985 990

Tyr Thr Met Pro Pro Glu Pro Thr Leu Ser Gln Asn Pro Leu Ser Ile
995 1000 1005

Met Met Ser Arg Met Ser Lys Phe Ala Met Pro Ser Ser Thr Pro
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Leu Tyr His Asp Ala Ile Lys Thr Val Ala Ser Ser Asp Asp Asp
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Ser Pro Pro Ala Arg Ser Pro Asn Leu Pro Ser Met Asn Asn Met
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Pro Gly Met Gly Ile Asn Thr Gln Asn Pro Arg Ile Ser Gly Pro
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Gly Pro Asn Ile Pro Pro His Gly Val Pro Met Gly Pro Gly Leu
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Met Ser His Asn Pro Ile Met Gly His Gly Ser Gln Glu Pro Pro
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Met Val Pro Gln Gly Arg Met Gly Phe Pro Gln Gly Phe Pro Pro
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Val Gln Ser Pro Pro Gln Gln Val Pro Phe Pro His Asn Gly Pro
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Ser Gly Gly Gln Gly Ser Phe Pro Gly Gly Met Gly Phe Pro Gly
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Glu Gly Pro Leu Gly Arg Pro Ser Asn Leu Pro Gln Ser Ser Ala

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Glu Gln	Ala Pro Arg Met	Gly Leu Ala Leu Pro	Gly Met Gly Gly	
1280		1285	1290	
Pro Gly	Pro Val Gly Thr	Pro Asp Ile Pro Leu	Gly Thr Ala Pro	
1295		1300	1305	
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Gln Gly	Met Met Gly Pro	His His Arg Met Met	Ser Pro Ala Gln	
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Ser Thr	Met Pro Gly Gln	Pro Thr Leu Met Ser	Asn Pro Ala Ala	
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Ala Val	Gly Met Ile Pro	Gly Lys Asp Arg Gly	Pro Ala Gly Leu	
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Tyr Thr	His Pro Gly Pro	Val Gly Ser Pro Gly	Met Met Met Ser	
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 ctctcccggc gcacgctcaa gtccggtgcc ttccccccgc agacccccga ggcgcaccct 3660
 caagctcggc gcctctgcgc ccccgccagg ggcgcacctca agcctgagcc ccccgggcgc 3720
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 acttcgcccc gcccaagggtg caccgctcaa gccccgaata aaaccagtc actccaactt 3840
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Phe Lys Glu Asp Gly Phe Gln Asp Lys Ala Ser His Phe Phe Ser Ser
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Thr Tyr Ser Pro Glu Thr Ser Arg Arg Lys Leu Pro Gln Ala Pro Lys
 20 25 30

Ala Ser Phe Leu Gly Gln Gln Gly Arg Val Ile Trp Lys Pro Leu Ser
 35 40 45

Glu Glu Leu Arg Asp Gln Gly Ala Asp Ala Ala Gly Gly Pro Ala Ser
 50 55 60

Ile Met Ser Pro Ile Ala Thr Val Asn Ala Ser Gly Leu Ser Lys Glu
65 70 75 80

Gln Leu Glu His Arg Glu Arg Ser Leu Gln Thr Leu Arg Asp Ile Glu
85 90 95

Arg Leu Leu Leu Arg Ser Gly Glu Thr Glu Pro Phe Leu Lys Gly Ala
100 105 110

Pro Arg Arg Ser Gly Gly Leu Lys Lys Tyr Glu Glu Pro Leu Gln Ser
115 120 125

Met Ile Ser Gln Thr Gln Ser Leu Gly Gly Pro Pro Leu Glu His Glu
130 135 140

Val Pro Gly His Pro Pro Gly Gly Asp Met Gly Gln Gln Met Asn Met
145 150 155 160

Met Ile Gln Arg Leu Gly Gln Asp Ser Leu Thr Pro Glu Gln Val Ala
165 170 175

Trp Arg Lys Leu Gln Glu Glu Tyr Tyr Glu Glu Lys Arg Arg Lys Glu
180 185 190

Glu Gln Ile Gly Leu His Gly Ser Arg Pro Leu Gln Asp Met Met Gly
195 200 205

Met Gly Gly Met Met Val Arg Gly Pro Pro Pro Pro Tyr His Ser Lys
210 215 220

Pro Gly Asp Gln Trp Pro Pro Gly Met Gly Ala Gln Leu Arg Gly Pro
225 230 235 240

Met Asp Val Gln Asp Pro Met Gln Leu Arg Gly Gly Pro Pro Phe Pro
245 250 255

Gly Pro Arg Phe Pro Gly Asn Gln Ile Gln Arg Val Pro Gly Phe Gly
260 265 270

Gly Met Gln Ser Met Pro Met Glu Val Pro Met Asn Ala Met Gln Arg
275 280 285

Pro Val Arg Pro Gly Met Gly Trp Thr Glu Asp Leu Pro Pro Met Gly
290 295 300

Gly Pro Ser Asn Phe Ala Gln Asn Thr Met Pro Tyr Pro Gly Gly Gln
305 310 315 320

Gly Glu Ala Glu Arg Phe Met Thr Pro Arg Val Arg Glu Glu Leu Leu
325 330 335

Arg His Gln Leu Leu Glu Lys Arg Ser Met Gly Met Gln Arg Pro Leu
340 345 350

Gly Met Ala Gly Ser Gly Met Gly Gln Ser Met Glu Met Glu Arg Met
355 360 365

Met Gln Ala His Arg Gln Met Asp Pro Ala Met Phe Pro Gly Gln Met
370 375 380

Ala Gly Gly Glu Gly Leu Ala Gly Thr Pro Met Gly Met Glu Phe Gly
385 390 395 400

Gly Gly Arg Gly Leu Leu Ser Pro Pro Met Gly Gln Ser Gly Leu Arg
405 410 415

Glu Val Asp Pro Pro Met Gly Pro Gly Asn Leu Asn Met Asn Met Asn
420 425 430

Val Asn Met Asn Met Asn Met Asn Leu Asn Val Gln Met Thr Pro Gln
435 440 445

Gln Gln Met Leu Met Ser Gln Lys Met Arg Gly Pro Gly Asp Leu Met
450 455 460

Gly Pro Gln Gly Leu Ser Pro Glu Glu Met Ala Arg Val Arg Ala Gln
465 470 475 480

Asn Ser Ser Gly Met Val Pro Leu Pro Ser Ala Asn Pro Pro Gly Pro
485 490 495

Leu Lys Ser Pro Gln Val Leu Gly Ser Ser Leu Ser Val Arg Ser Pro
500 505 510

Thr Gly Ser Pro Ser Arg Leu Lys Ser Pro Ser Met Ala Val Pro Ser

515

520

525

Pro Gly Trp Val Ala Ser Pro Lys Thr Ala Met Pro Ser Pro Gly Val
 530 535 540

Ser Gln Asn Lys Gln Pro Pro Leu Asn Met Asn Ser Ser Thr Thr Leu
 545 550 555 560

Ser Asn Met Glu Gln Asp Pro Thr Pro Ser Gln Asn Pro Leu Ser Leu
 565 570 575

Met Met Thr Gln Met Ser Lys Tyr Ala Met Pro Ser Ser Thr Pro Leu
 580 585 590

Tyr His Asn Ala Ile Lys Thr Ile Ala Thr Ser Asp Asp Glu Leu Leu
 595 600 605

Pro Asp Arg Pro Leu Leu Pro Pro Pro Pro Pro Pro Gln Gly Ser Gly
 610 615 620

Pro Gly Gly Pro Asp Ser Leu Asn Ala Pro Cys Gly Pro Val Pro Ser
 625 630 635 640

Ser Ser Gln Met Met Pro Phe Pro Pro Arg Leu Gln Gln Pro His Gly
 645 650 655

Ala Met Ala Pro Thr Gly Gly Gly Gly Gly Gly Pro Gly Leu Gln Gln
 660 665 670

His Tyr Pro Ser Gly Met Ala Leu Pro Pro Glu Asp Leu Pro Asn Gln
 675 680 685

Pro Pro Gly Pro Met Pro Pro Gln Gln His Leu Met Gly Lys Ala Met
 690 695 700

Ala Gly Arg Met Gly Asp Ala Tyr Pro Pro Gly Val Leu Pro Gly Val
 705 710 715 720

Ala Ser Val Leu Asn Asp Pro Glu Leu Ser Glu Val Ile Arg Pro Thr
 725 730 735

Pro Thr Gly Ile Pro Glu Phe Asp Leu Ser Arg Ile Ile Pro Ser Glu
 740 745 750

Lys Pro Ser Ser Thr Leu Gln Tyr Phe Pro Lys Ser Glu Asn Gln Pro
755 760 765

Pro Lys Ala Gln Pro Pro Asn Leu His Leu Met Asn Leu Gln Asn Met
770 775 780

Met Ala Glu Gln Thr Pro Ser Arg Pro Pro Asn Leu Pro Gly Gln Gln
785 790 795 800

Gly Asp Arg Pro Leu Val Val Val Ile Pro Gly Thr Arg Ala Met Ala
805 810 815

Pro Ala Gln Arg Cys Pro Leu Cys Arg Gln Thr Phe Phe Cys Gly Arg
820 825 830

Gly His Val Tyr Ser Arg Lys His Gln Arg Gln Leu Lys Glu Ala Leu
835 840 845

Glu Arg Leu Leu Pro Gln Val Glu Ala Ala Arg Lys Ala Ile Arg Ala
850 855 860

Ala Gln Val Glu Arg Tyr Val Pro Glu His Glu Arg Cys Cys Trp Cys
865 870 875 880

Leu Cys Cys Gly Cys Glu Val Arg Glu His Leu Ser His Gly Asn Leu
885 890 895

Thr Val Leu Tyr Gly Gly Leu Leu Glu His Leu Ala Ser Pro Glu His
900 905 910

Lys Lys Ala Thr Asn Lys Phe Trp Trp Glu Asn Lys Ala Glu Val Gln
915 920 925

Met Lys Glu Lys Phe Leu Val Thr Pro Gln Asp Tyr Ala Arg Phe Lys
930 935 940

Lys Ser Met Val Lys Gly Leu Asp Ser Tyr Glu Glu Lys Glu Asp Lys
945 950 955 960

Val Ile Lys Glu Met Ala Ala Gln Ile Arg Glu Val Glu Gln Ser Arg
965 970 975

Gln Glu Val Val Arg Ser Val Leu Glu Thr Gly Pro Pro Arg Tyr Ala
980 985 990

Leu Thr Val Arg Ser Pro Ala Val Leu Ser Arg Arg Thr Leu Lys Ser
995 1000 1005

Gly Ala Phe Pro Pro Gln Thr Pro Glu Ala His Pro Gln Ala Arg
1010 1015 1020

Cys Leu Cys Ala Pro Arg Arg Gly Ala Leu Lys Pro Glu Pro Pro
1025 1030 1035

Gly Arg Thr Leu Lys Leu Gly Val Pro Pro His Thr Thr Arg Lys
1040 1045 1050

Ala Arg Pro His Ala Ala Lys Thr Ser Pro Arg Pro Arg Cys Thr
1055 1060 1065

Arg Gln Ala Pro Asn Lys Thr Gln Ser Leu Gln Leu Ala Gly Lys
1070 1075 1080

Ala Arg Lys Thr Ala Leu His Leu Gln Thr Lys Ala Leu Val Gly
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Asp Asp Asp Thr Val Leu Gly Val Lys Leu Ser Ile Ala Asn Tyr
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Asp Leu
1115

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49

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<223> dsRNA-lgs-F1

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<220>
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49

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<213> Artificial

<220>
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48

<210> 22
<211> 27
<212> DNA
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<220>
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<222> (1)..(27)
<223> T7 Promoter

<400> 22
taatacgact cactataggg agaccac

27